

**IN THE CLAIMS**

Please amend claims 1 and 16 as follows:

1. (Currently Amended) A method of determining viability of living cells, comprising:
  - (a) obtaining a container loaded with deuterated materials, wherein the deuterated materials are selected from the group consisting of water, glucose and an amino acid;
  - (b) introducing a sample of cultured living cells into the container whereby the living cells are in contact with the deuterated materials;
  - (c) obtaining vibrational spectra emitted by the living cells, wherein the vibrational spectra are selected from the group consisting of Raman, infrared and near infrared spectra;

wherein the vibrational spectra emitted by the living cells are indicative of metabolism, thereby providing an indication of viability of the cells, such that greater metabolic activity is indicative of greater viability.
2. (Original) The method of claim 1, wherein the vibrational spectra are Raman spectra.
3. (Original) The method of claim 1, wherein the vibrational spectra are infrared or near infrared spectra.
4. (Original) The method of claim 1, wherein the deuterated material is selected from the group consisting of  $\alpha$ -D-glucose; 6,6- dideutero- $\alpha$ -D-glucose; D<sub>2</sub>O; 3-O-methylglucose; 6,6- dideutero- $\alpha$ -D-3-O-trideuteromethylglucose; 6,6- dideutero- $\alpha$ -D-3-O-methylglucose; and 6,6- dideutero - $\alpha$ -D-2-O-methylglucose.
5. (Original) The method of claim 1, wherein the deuterated material comprises a deuterated amino acid.

6. (Original) The method of claim 2, further comprising normalizing the Raman spectra obtained by comparing the Raman spectra obtained at a target wavenumber to the Raman spectra obtained at a reference wavenumber.
7. (Original) The method of claim 6, wherein the target wavenumber is  $960\text{ cm}^{-1}$ ,  $1270\text{ cm}^{-1}$  or  $2400\text{-}2600\text{ cm}^{-1}$ .
8. (Original) The method of claim 6, wherein the reference wavenumber is the amide I Raman feature ( $1600\text{-}1700\text{ cm}^{-1}$ ).
9. (Original) The method of claim 6, wherein the reference wavenumber is the  $\text{CH}_2$  Raman feature ( $1450\text{ cm}^{-1}$ ).
10. (Original) The method of claim 6, wherein the reference wavenumber is the CH stretch Raman feature ( $2900\text{-}3000\text{ cm}^{-1}$ ).
11. (Original) The method of claim 6, wherein the reference wavenumber is the amide III Raman feature ( $1200\text{-}1350\text{ cm}^{-1}$ ).
12. (Original) The method of claim 6, wherein the reference wavenumber is the integral of all the Raman features ( $300\text{-}1850\text{ cm}^{-1}$ ).
13. (Original) The method of claim 2, further comprising normalizing the Raman spectra obtained by comparing the Raman spectra obtained at a target wavenumber to the fluorescence generated by a Raman excitation source.
14. (Original) The method of claim 13, wherein the fluorescence is the  $\text{H}_2\text{O}$  fluorescence ( $980\text{ nm}$ ).
15. (Original) The method of claim 1, wherein the container is a centrifuge tube.
16. (Currently Amended) A method of determining cell viability, comprising:
  - (a) obtaining a container loaded with deuterated materials, wherein the deuterated materials are selected from the group consisting of water, glucose and an amino acid;

- (b) introducing a sample of cultured living cells into the container whereby the cells are in contact with the deuterated materials;
- (c) obtaining vibrational spectra emitted by the cells, wherein the vibrational spectra are selected from the group consisting of Raman, infrared and near infrared spectra;
- (d) placing an aliquot of the cells into a medium free of deuterated materials;
- (e) obtaining vibrational spectra emitted by the cells in the non-deuterated medium;
- (f) determining the rate of decrease of emitted vibrational spectra;

wherein the vibrational spectra are indicative of metabolism, thereby providing an indication of viability of the cells, such that a faster rate of decrease of emitted vibrational spectra is indicative of greater viability.

- 17. (Previously presented) The method of claim 1, further comprising repeating step (c) at a later time and comparing the vibrational spectra obtained, wherein greater changes in vibrational spectra upon repeating step (c) relative to the prior instance of step (c) are indicative of greater viability of the cells.
- 18. (Previously presented) The method of claim 1, wherein the vibrational spectra are obtained without the use of UV-visible spectroscopy.